DOCKET FILE COPY ORIGINAL

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of	)	
	)	
Proposed Amendment of the	)	PR Docket 92-257
Commissions Rules Concerning	)	Second Further Notice
Maritime Communications.	)	of Proposed Rule Making

To: Secretary
Federal Communications Commission
1919 M. Street
Washington DC 20554

Comments of Fred Daniel d/b/a Orion Telecom

I. INTRODUCTION

[1]Fred Daniel, d/b/a. Orion Telcom (Orion), respectfully files these Comments with regard to PR Docket 92-257, Second Further Notice of Proposed Rule Making.

[2] Orion is licensed by the Federal Communications Commission (FCC) to provide AMTS maritime CMRS services on the East, West and Gulf Coasts of the United States.

II. COMMENTS

[3]Orion generally supports the proposed changes for VHF services (156-162 Mhz), put forward in this SFNPRM. Orion's comments are principally directed to AMTS issues.

Service Contours, Frequency Coordination

[4]Orion supports the use of a +17 dBu field strength, as a "service contour" for AMTS operations. Orion further supports the use of a common standard with regard to service contour for both coastal and land locked areas. There is no difference in the engineering requirements as applicable to coastal and land-

locked AMTS systems, and while earth obstruction and other terrain anomalies may influence actual service availability, for the purpose of system planning the same +17 dBu service contour should be applied.

[5]At such locations where the adopted service contours of co-primary AMTS licensees shall meet, coincide or overlap, (from existing systems before the establishment of a +17dBu standard) licensees shall engage in mutual frequency coordination, to avoid harmful interference to their respective AMTS systems. Co-primary licensees will have equal access to the spectrum that is available where systems meet, coincide or overlap. Given the limited number of AMTS licensees, Orion sees no useful purpose in proposing a formal frequency coordination agency.

[6]The Commission's Rules for Cellular as part of the Public Mobile Services are instructive, regarding frequency coordination.

- In Part 22.150 the Commission outlines a specific procedure to coordinate the proposed use of spectrum by eligible parties.

- Further, in Part 22.907 the Commission outlines specific transmitter seperation criteria and rules advocating mandatory cooperation for the efficient use of the Cellular spectrum.

- Finally under Part 22.352(c) the rules outline the conditions under which no protection from interference is afforded. In particular Part 22.352(c)(5) with regard to anomalous or infrequent propagation modes.

[7]It is evident that the Commission has already expended considerable time and effort in formulating specific frequency coordination rules. While some specifics, such as signal propagation may be different at AMTS frequencies, Orion contend rules already in place in other CMRS services can be easily applied to Part 80.

Off-Shore Regions

[8]Orion sees no benefit in adopting separate "off-shore" regions in the AMTS service. Off shore regions form an integral part of an integrated, automated AMTS environment and as such should not be separately administered.

Partitioning and Disaggregation

[9]Orion wholeheartedly supports the Commission's proposals with regard to Partitioning and Disaggregation as applicable to AMTS as a CMRS service. Such arrangements would allow AMTS licensees significantly increased flexibility in meeting the public need for competitive communications services.

Technical Flexibility

[10]Orion supports the use of any technology that will allow for greater spectrum efficiency and flexibility. Full technical flexibility will allow AMTS licensees to take advantage of technological developments to provide the most advantageous user applications and provide overall improved services to the public. As AMTS allocations are based on a block allocation, Orion agrees with the Commission that there is no need to specify a particular channel plan. Orion supports the use of any channelization[1] or modulation scheme, provided transmissions do not exceed the emission limitations of each AMTS station's block allocation band edge.

[11]Orion supports the Commission's proposal to measure transmission power at the antenna input, instead of the transmitter output, thereby eliminating the variable effect of transmission line losses and allowing AMTS system designers to utilize innovative transmission combining solutions, without sacrificing system performance.

[12]Orion notes that the current rules contain a number of contradictions. It is presumed that the Commission will take the opportunity through this Second Further Notice of Proposed Rule Making to rectify some of these inconsistencies.

[13]Part 80.213(a)(2), which references a +/-5 KHz peak modulation, may not be applicable to AMTS services under revised rules proposed in this SFNPRM.. Similarly, Part 80.213(d) may also be inapplicable, under a more flexible channelization arrangement..

[14]Maritime rules under Part 80.70 refers to stations "above 150 MHz" being subject to special provisions. By inference, as AMTS frequencies are above 150 Mhz, these provisions enumerated may be construed as applicable to AMTS systems, whereas their applicability appears limited to stations in the VHF maritime band (156-162 MHz).

[1] See ACSB Waiver Request to Federal Communications Commission Gettysburg Office, (Feb. 21, 1996)

[15]Part 80.215 (e)(2) (footnote 7) stipulates that AMTS radios must be reducible to 2.5 watts and further refers to paragraph (i) which stipulates that this power reduction must be made via a front panel control on the radio. Orion considers this provision unneccesary in the context of an automated system such as is required for AMTS.

[16]While Orion understands the need for this type of power reduction in VHF maritime equipment, where emergency simplex channels (ch. 16) may be used in a confined harbor or estuary, or on a vessel to vessel basis, the opposite is the case with AMTS.

[17]AMTS operators are not licensed simplex operations. Many times AMTS stations are located well away from harbors and are intended to provide wide area automated services. The implementation of a manual control, on what the Commission intended to be a fully automated system, will unneccesarily increase terminal costs and complicate susbscriber operation, without any useful benefit. Orion has investigated all of the subscriber radios currently approved for use on AMTS frequencies and it would appear that none has provision for a front panel power control[2]. The rules in Part 80.215 (e)(1)(Footnote 6) allow that conventional VHF (156-162 Mhz) radios are exempted from a front panel power reduction facility if "transmitters are limited to public correspondence channels and used in automated systems". This is a reference to future VHF DSC based public correspondence systems. As AMTS systems are automatic, and the susbcriber terminals limited to public correspondence channels by design, the same provision should logically apply to AMTS. If this type of front panel control served a useful purpose in an automated public correspondence environment, then every cellular telephone or PCS handset would be so equipped. Orion would request that the provision for a front panel power control for AMTS subscriber terminals be deleted from the rules.

Operational Flexibility

[18]Orion supports the extension of the operational flexibility, afforded to other CMRS services[3], to the AMTS service. Such extension would allow Orion to increase the diversity of services that it can offer to the public. Such flexibility should include fixed[4], mobile and hybrid services. This would allow Orion to provide such services as "Virtual Private Coast Station Service", via its public coast station network.

---

[2] The following radio manufacturers were contacted and or radio equipment examined for a front panel power control. Macaw Electronics, Model HS2000 (portable) FCC T/A No. L9THS-2000, Approval date 10/12/95; Neutech Communications, Model-Ranger SM1625, FCC T/A No. DCU79FSM-1625HP, Approval date 02/02/87; Tait Electronics, Model T2040, FCC T/A No. CAST 2040-423, Approval date 11/11/94; and Intech Inc. Model No. - Not Avail., FCC T/A No. BCAGW00, Approval date - approx 1986.

[3] Ref. WT Docket 96-6 *First Report and Order and Further Notice of Proposed Rule Making*

[4] See Request for Advisory Opinion from Orion to the Private Wireless Division, Wireless Telecommunications Bureau, Federal Communications Commission (March 5, 1996)

[19]Assuming that the Commission is able to extend the operational flexibility, afforded other CMRS licensees, to AMTS, then Orion sees no need to differentiate stations located far from navigable waterways, from those of a standard AMTS implementation. Orion further requests that coast station and ship station frequencies be authorized for fixed service communications, on a secondary basis, to support AMTS deployment in rural locations, similar to provisions provided for off-shore AMTS operations.[5]

[20]Orion supports the proposition that AMTS CMRS licensees should be able to provide any permitted service without restriction, or notification to the Commission regarding commencement or cessation of such permitted services, except for those services that AMTS licensees are to specifically provide as a condition of license grant. Further, that the Commission should forbear from any unnecessary regulation, that burdens the scant resources of the Commission, and that does not serve the public interest.

Siting Flexibility in AMTS

[21]Orion endorses the current AMTS engineering requirement, and considers the showings required to be reasonable for applications for new AMTS service areas and expansion of existing service areas.

[22]However, the procedure for adding "fill-in" stations, within a currently authorized system contour, should closely follow that suggested in Part 22 for Paging, Cellular and other Radiotelephone services. In this service "a licensee may operate additional transmitters at additional locations on the same channel or channel block as its existing system without obtaining prior Commission approval, provided, the interfering contours of the additional transmitters must be totally encompassed by the composite interfering contour of the existing station (or stations under the common control of the applicant) on the same channels.....". Such a station would remain operational, unless harmful interference is encountered. Orion would recommend that a similar procedure be adopted for maritime, whereby "fill-in" stations could be placed in service.

[23]No engineering study would be required for such fill-in stations, with the exception of notifying broadcast stations which were perhaps not notified as part of the original AMTS system license authorization. Nothing above would absolve an AMTS licensee from any requirements to meet FAA antenna siting regulations, when operating within close proximity to an airport.

---

[5] *See* 47 C.F.R. Part 80.477 (b)

[24]Further, Orion suggests to the Commission that AMTS licensees be given "temporary fixed station" provisions, similar to provisions contained in Part 22.1031(a), as part of their license authorizations, in order to conduct short duration tests of expanded service areas. If no harmful interference were demonstrated, then the AMTS licensee could place the station into permanent operation, while simultaneously filing a permanent license application, including engineering, with the Commission within 60 days of the station being placed into permanent operation. If harmful interference were found to occur, then the interference would have to be mitigated as noted in the rules.[6], before the station could be placed in permanent service, either by technical modification of the implementation or by relocation of the station to a location where no harmful interference is generated. The above would allow AMTS licensees to properly manage system development and growth without unduly burdening the Commission with unneccesary license requests.

[25]Orion points out that the interests of broadcasters, are adequately and specifically protected under the rules[7], by placing the mitigation of harmful interference squarely on the shoulders of AMTS providers. . While supporting the requirement for full system and site engineering for new services which expand an AMTS licensees' service area, Orion at the same time requests from the Commission protection from objections from broadcasters, that are frivolous and without technical support or validation. Objections by broadcasters, which do not bear the burden of proof that harmful interference is or WILL definitely occur, as opposed to the possibility that harmful interference may occur, cause unnecessary delays in the issuance of licenses and provision of valuable communications services to the public.

[26]While Orion is of the opinion that the findings of Middlekamp and Davis[8], as reported in the Eckert Report[9], may be outdated, Orion is mindful of the manpower constraints at the Commission with regard to the effort that may be required to update the Eckert Report.

[27]Orion currently operates a 'maximum power' system at Santiago Peak some 47 miles from the channel 13 transmitter location at Mt. Wilson, near Los Angeles. On the basis of the Eckert Report this would mean there would be a reasonable possibility of interference that could affect approximately 3900 square miles of service area, containing more than 9,000,000 inhabitants. Our own tests have shown that our facilities at Santiago does create a potential for interference in an area less than 1/4 mile surrounding the AMTS transmitter, under the worst of circumstances. There are no residences or inhabitants within this 1/4 mile radius of Orion's facilities at Santiago peak. The vast difference between the predictions, based

---

[6] *See* 47 C.F.R. Part 80.215(h),

[7] *See* 47 C.F.R. Part 80.215(h)

[8] *See* L. Middlekamp, H. Davis *Interference to TV Channels 11 and 13 From Transmitters Operating at 216-225 Mhz*, FCC Lab Division Report, Project No. 2229-71, Oct. 1975

[9] *See* R. Eckert FCC/OST TM82-5 *Guidance for Evaluating The Potential For Interference to TV from Stations of Inland Waterway Communications Systems*

in the Eckert Report and our own empirical findings, can only be attributed to significantly improved television receiver performance over the preceding 25 years.

[28]The tests conducted by Middlekamp and Davis, and published in October of 1975, as referenced in the Eckert Report, were conducted on a very limited sample of used televisions sets. The five sets tested were meant to represent five different designs of tube type or tube/transistor hybrid designs, in use at the time.

[29]The results of Middlekamp and Davis' testing, noted in the Eckert Report, clearly show that:

1. There is a significant disparity between the interference susceptibility of the five sets tested; and

2. If any of the five sets tested were to be used on a "current" cable TV system, where typically all channels (2-13) are simultaneously in use, then in all likelihood all five of the tested receivers would clearly display interference, not due to AMTS operations, but from the adjacent TV channel.

[30]Orion's direct operational experience has indicated that the performance of TV sets today is significantly better than in 1975, with respect to television interference susceptibility.

[31]Therefore, Orion would ask the Commission to take into account the following.

1. Many AMTS stations have been constructed and implemented within the Grade B contour of Channel 10 and 13, without a single case of reported television interference.

2. Orion knows of no official complaint against any AMTS provider with regard to interference to television reception.

3. The Commission itself opined that "Historically, AMTS licensees have demonstrated that properly designed AMTS facilities can co-exist with television broadcast operations without harmful interference". In a previous Memorandum Opinion and Order[10] the Commission stated that "in the past there have been few if any, interference complaints".

4. Finally, the Commission itself quite properly notes that the Rules are succinct and specific in defining that the ultimate responsibility lies with AMTS licensees, when it comes to the mitigation and eradication of harmful interference.

[10] In Re Applications of Fred Daniel d.b.a. Orion Telecom and Paging Systems Inc. For Authority to Construct New Automated Maritime Telecommunications Systems at Miami, Florida; New Bern North Carolina; Suffolk, Virginia; Baltimore, Maryland; Newark, New Jersey; New York, New York; Oak Hill, Florida; Rehoboth, Massachusetts; Spaulding, Florida; and Raymond, Maine. Memorandum Opinion and Order (May 10, 1996)

[32]To Orion's knowledge there has never been a confirmed case of interference to television reception from AMTS operations, therefore the question asked in the Second Further Notice of Proposed Rule making with regards to steps taken by AMTS licensees to mitigate interference may be moot.

Construction Time Frame Flexibility

[33]Orion would contend that uniformity in the administration of construction timeframes would be very desirable. A standardized 2 year construction period for AMTS stations, irregardless of whether they are totally new systems or expansion of existing AMTS systems should be established. Orion concurs with the Commission's position that fill-in stations should have no construction timeframes.

LPRS AMTS Channels

[34]Orion recognizes the Commission's decision to implement LPRS by rule. Certainly the non-AMTS users of this LPRS service have indicated that the current 100 milliwatt ERP limitation is acceptable to them. Orion must take issue with the extension of this power limitation to AMTS network control applications, as our proposed use is significantly different to those proposed by other LPRS users.

[35]The original *Notice of Proposed Rule Making* proposed a Low Power Radio Service, which included the use of the higher channels (those above 216.750) in the 216-217 MHz band, by AMTS licensees for network control at 1 watt power output. Two AMTS licensees, Orion and Waterway Communications Inc. (Watercom), filed comments in respect to the *Notice*, supporting the proposed rule making, although no specific advocacy of the 1 watt power limitation, as proposed by the Commission, was made by any AMTS Commenter or Reply Commenter. Orion believes that a 1 watt limit is both reasonable and warranted for unlicensed AMTS network control applications.

[36]Orion considers a 1 watt limitation to be the absolute lowest, practical power output to support a feasible network control solution for AMTS systems. Given that AMTS stations are between 30-50 miles apart, the currently adopted 100 milliwatt ERP power limitation would not allow for sufficient engineering fade margin to facilitate a universally workable solution. The following system description and formulation may give some further insight into our concern.

Starting ERP (100 mw)	+20 dBm
Less Free Space Path Loss (50 Miles)	-120 dB
Less Urban Noise Factor	-6 dB
Usable Fade Margin	**-1 dB**
Receiver Sensitivity BER $1x10^{-6}$	-107 dBm

[37]Orion can only speak authoritatively concerning its perspective on mitigation of interference and draw certain conclusions, based on Comments and Reply Comments placed on the record as part of these proceedings.

[38]Our experience has conclusively demonstrated that services operating adjacent to television channels can effectively co-exist without causing harmful interference. This is not supposition, this is fact, as no record of any complaints is available to demonstrate otherwise. As a matter of fact, only AMTS licensees have constructed and implemented systems from which to draw first hand experience.

[39]Orion has provided the Commission with a technical evaluation of its facilities at Satiago Peak, near Los Angeles in its comments reference Siting Flexibility. This engineering conclusion is applicable in this instance as well. More particularly, the Eckert Report itself, in Table 1, concedes that frequencies from 216.500-217.000 MHz afford an additional 13dB reduction in interference susceptibility. This is in excess of the 10dB required to justify the increase in power from 100 mw ERP to 1 watt, notwithstanding the significantly improved television receiver specifications of television receivers produced today, as compared to 1975.

[40]In conclusion, Orion would ask the Commission to consider the following:

1. AMTS network control operations would be installed in fixed and easily identifiable locations, as opposed to itinerant applications as would be the case with other users of the LPRS service, facilitating any remedial action that may be required to mitigate possible interference to channel 10 and 13 television reception.
2. The Commission own study[11] , albeit flawed with respect to current television receiver standards, finds that there is an additional reduction of interference susceptibility of 13 dB at frequencies between 216.750 and 217.000 MHz, compared to frequencies lower in the 216-217 MHz band.

[41]Based on the above showing and the conditions of grant, with respect to interference mitigation and rectification inherent in any AMTS license according to CFR 47 Section 80.215(h), Orion believes there is ample grounds for the Commission to reconsider its position with regard to the power limitation for AMTS network control stations. Orion respectfully requests AMTS licensees be allowed the use by rule, of frequencies between 216.750 and 217.000 MHz for AMTS network control applications at 1 watt.

[11] R. Eckert FCC/OST TM82-5 Guidance for Evaluating The Potential For Interference to TV from Stations of Inland Waterway Communications Systems

Competitive Bidding Procedures

[42]Orion supports the competitive bidding rules, as outlined in the Second Further Notice of Proposed Rule Making, and acknowledges that the two tier small business approach, adopted for the 900 Mhz SMR and 800 Mhz SMR services, would be acceptable for future possible AMTS auctions.

[43]Orion Telecom wish to thank the Commission for the opportunity to provide input to this rule making.

August 19,1997

Respectfully submitted

Fred Daniel d/b/a
Orion Telecom
P.O. Box 9227
Newport Beach, Ca. 92658-9227